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(54) Title: FERRITIC STAINLESS STEEL PLATE WITH Ti AND METHOD FOR PRODUCTION THEREOF

(54) 発明の名称: Ｔｉ添加フェライト系ステンレス鋼板およびその製造方法

A   鋼2
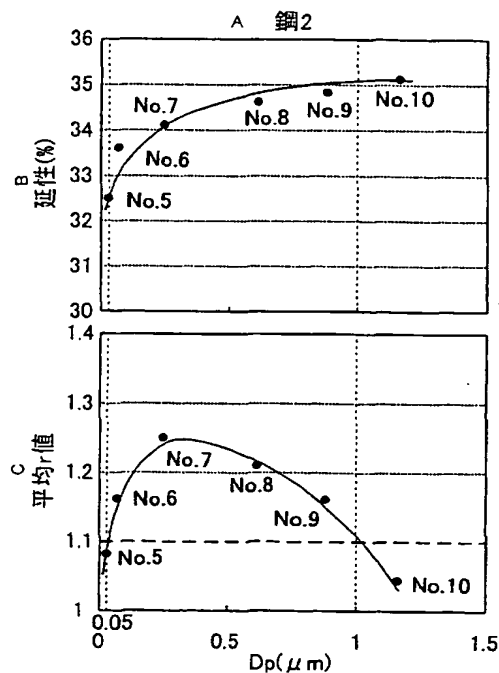
A...STEEL 2
B...DUCTILITY (%)
C...AVERAGE r VALUE

(57) Abstract: A ferritic stainless steel plate added with Ti which has a chemical composition, in mass %: C: 0.01 % or less, Si: 0.5 % or less, Mn: 0.3 % or less, P: 0.01 to 0.04 %, S: 0.01 % or less, Cr: 8 to 30 %, Al: 1.0 % or less, Ti: 0.05 to 0.5 %, N: 0.04 % or less, with the proviso that 8 < Ti/(C+N) < 30, and the balance: substantially Fe and inevitable impurities, characterized in that it has a ferrite grain size of 6.0 or more and precipitates in the steel have an average diameter Dp [(length of major axis of a precipitate + length of minor axis of the precipitate)/2] of 0.05 to 1.0 μm; and a method for producing the steel plate. The ferritic stainless steel plate allows the reduction of the load on a refining step, and also has excellent working characteristics and a low yield strength.

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ABSTRACT

The present invention provides a Ti-containing ferritic stainless steel sheet and a manufacturing method thereof, the stainless steel being formed while a refining load is decreased and having a low yield strength which exhibits superior workability.

Specifically, the Ti-containing ferritic stainless steel sheet contains on mass percent basis: 0.01% or less of C; 0.5% or less of Si; 0.3% or less of Mn; 0.01% to 0.04% of P; 0.01% or less of S; 8% to 30% of Cr; 1.0% or less of Al; 0.05% to 0.5% of Ti; 0.04% or less of N, $8 \leq Ti/(C+N) \leq 30$ being satisfied; and the balance being substantially Fe and incidental impurities, wherein a grain size number of ferrite grain is 6.0 or more, and an average diameter Dp of precipitation diameters, each being [(a long axis length of a Ti base precipitate + a short axis length thereof)/2], of the Ti base precipitates in the steel sheet is in the range of from 0.05 μm to 1.0 μm. In addition, the method for manufacturing a Ti-containing ferritic stainless steel sheet includes the steps of: hot-rolling a slab having the composition described above, and performing recrystallization annealing of the hot-rolled steel sheet at a temperature of (a precipitation nose temperature of Ti base precipitates ± 50℃) so that an average diameter Dp of

precipitation diameters, each being [(a long axis length of a Ti base precipitate + a short axis length thereof)/2], of the Ti base precipitates is in the range of from 0.05 μm to 1.0 μm and so that a grain size number of ferrite grain is 6.0 or more. The method for manufacturing a Ti-containing ferritic stainless steel sheet, further includes the steps of: performing cold rolling; and subsequently performing final annealing of the cold-rolled steel sheet at a temperature less than (a precipitation nose temperature of Ti base precipitates + 100℃) so that the average diameter Dp of precipitation diameters, each being [(a long axis length of a Ti base precipitate + a short axis length thereof)/2], of the Ti base precipitates is in the range of from 0.05 μm to 1.0 μm and so that the grain size number of ferrite grain is 6.0 or more.